

PHYSICS

DETECTING DUST GENERATING STARS IN THE MILKY WAY AND BEYOND

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Wolf-Rayet (WRs) stars are considered the final evolutionary stages of massive stars. WRs are regarded as the most prodigious sources of hot, freshly formed dust in the Milky Way galaxy. WRs were among the dominating dust-producers in the early Universe. We developed a technique to find dust-generating WRs using the recently compiled 2MASS point source catalogue. Constructing the J-H vs. H-K color diagrams based on the reprocessed data from the catalogue, we have been able to clearly distinguish the dust-producing WRs from the rest of the galactic population. The probability of detection can reach 90--99%, depending on the characteristics of the stellar system. The technique can be successfully applied to other galaxies in order to detect extragalactic dust-producing WRs.